

Serial No.: 09/748,706
Filed: December 22, 2000

AMENDMENTS

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-26 (**canceled**)

Claims 27-39(**withdrawn**)

40. (**previously presented**) A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

- i) a bioactive agent;
- ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and wherein said identifier binding ligand is directly attached to said microsphere; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents.

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41. **(previously presented)** The method according to claim 40, wherein said detecting comprises detecting binding of a decoder binding ligand (DBL) to said IBL.

42. **(previously presented)** A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

i) a bioactive agent;

ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and wherein said identifier binding ligand is directly attached to said microsphere; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents, wherein said detecting comprises detecting binding of a decoder binding ligand (DBL) to said IBL; and

c) detecting binding of a first target analyte to said bioactive agent on said first subpopulation of microspheres.

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43. **(previously presented)** The method according to claims 40 or 42, wherein said IBL comprises a nucleic acid.

44. **(previously presented)** The method according to claims 40 or 42, wherein said second decoding attribute is selected from the group consisting of a second IBL, microsphere size or microsphere surface texture.

45. **(previously presented)** The method according to claims 40 or 42, wherein said first and second attributes are IBLs and are attached to said first subpopulation of microspheres at a first ratio and are attached to said second population of microspheres at a second ratio.

46. **(previously presented)** The method according to claims 40 or 42, wherein said subpopulations are distributed on a substrate.

47. **(previously presented)** The method according to claims 40 or 42, wherein said array is a liquid array.

48. **(previously presented)** The method according to claims 40 or 42, wherein said detecting is by fluorescence-activated cell sorter (FACS).

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49. **(previously presented)** The method according to claims 40 or 42, wherein said bioactive agent and said IBL are different molecules.

50. **(previously presented)** A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

- i) a bioactive agent;
- ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and said second decoding attribute comprises a physical attribute of said microsphere; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents.

51. **(previously presented)** A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

- i) a bioactive agent;

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ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and said first and second decoding attributes are independent of each other; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents.

52. **(New)** A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

i) a bioactive agent;

ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and wherein said identifier binding ligand is covalently attached to said microsphere; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents.

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53. **(New)** The method according to claim 52, wherein said identifier binding ligand is covalently attached by chemical attachment or cross-linking.

54. **(New)** A method comprising:

a) providing an array composition comprising a population of microspheres comprising at least a first and a second subpopulation, wherein the microspheres of each subpopulation comprise:

i) a bioactive agent;

ii) at least a first and a second decoding attribute wherein a first of said decoding attributes is an identifier binding ligand (IBL), wherein said IBL is different from said bioactive agent and wherein said identifier binding ligand is attached to said microsphere, wherein said microsphere is a streptavidin-coated microsphere and said identifier binding ligand is biotinylated; and

b) detecting each of said first and second decoding attributes to identify each of said bioactive agents.